

What is claimed is:

1. An aging apparatus of a field emission device provided with a scan driving unit and a panel, the apparatus comprising:

5 an aging operation controlling unit for performing an aging operation by controlling a high voltage of a pulse form applied to an anode electrode of the panel and a voltage applied to the scan driving unit.

2. The apparatus of claim 1, wherein the aging operation controlling
10 unit drives the panel by applying a high voltage of a pulse form switched in accordance with a direct current high voltage gradually increasing up to a preset maximum voltage to the anode electrode and then by applying a power source to the scan driving unit.

3. The apparatus of claim 1, wherein the aging operation controlling
15 unit comprises:

a power controlling unit for applying a power to the scan driving unit by an external power control signal;

a pulse generating unit for receiving an external pulse control signal and
20 thereby outputting a pulse signal having a corresponding frequency and a duty cycle;

a high voltage applying unit for receiving a pulse signal from the pulse generating unit, converting a direct current high voltage into an alternating current high voltage of a pulse form, and thereby applying to the anode electrode; and

25 a program controlling unit for detecting a voltage and a current applied to

the anode electrode of the panel from the high voltage applying unit, comparing the detected current value with a preset limitation current value, and outputting a pulse control signal and a power control signal to the pulse generating unit and the power controlling unit, respectively.

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4. The apparatus of claim 3, wherein the program controlling unit and the power controlling unit, the program controlling unit and the pulse generating unit, and the program controlling unit and the high voltage applying unit are connected to each other by a universal interface bus.

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5. The apparatus of claim 3, wherein the high voltage applying unit comprises a switching means for receiving a pulse signal from the pulse generating unit, switching a direct current high voltage into an alternating current high voltage of a pulse form, and thereby outputting.

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6. The apparatus of claim 5, wherein the switching means is a high voltage relay which is switching-controllable as a ms unit, or a semiconductor device which is switching-controllable as a μ s unit.

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7. The apparatus of claim 3, wherein the program controlling unit detects a current fed back from the anode electrode thus to output a pulse control signal for performing an off operation for the high voltage applying unit or stops a program when the current fed back from the anode electrode overflows than a preset limitation current, and controls the power controlling unit thus to output a control signal for stopping a voltage supply to the scan driving unit.

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8. The apparatus of claim 3, wherein the program controlling unit or the high voltage applying unit include an inner memory for storing a timing setting value, a high voltage setting value, a gradient setting value, a limitation current setting value, and etc. for the direct current high voltage.

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9. The apparatus of claim 1, further comprising a data driving unit for outputting a timing control signal and a data pulse.

10. The apparatus of claim 9, wherein the scan driving unit receives a data signal and a clock signal inputted from outside by the timing control signal outputted from the data driving unit and thereby outputs a scan pulse.

11. The apparatus of claim 9, wherein the panel receives a data pulse outputted from the data driving unit and a scan pulse outputted from the scan driving unit and thereby displays data.

12. An aging method of a field emission device provided with a scan driving unit and a panel, the method comprising:

a pre-aging for switching a direct current high voltage applied to an anode electrode of the panel and thereby outputting as an alternating current high voltage of a pulse form; and

a main aging for controlling a voltage applied to the scan driving unit.

13. The method of claim 12, wherein the pre-aging method comprises the steps of:

converting a gradually increasing direct current high voltage applied to an anode electrode into an alternating current high voltage of a pulse form by an external pulse signal and thereby applying;

5 detecting a current and a voltage generated at the time of applying the pulse high voltage, comparing the detected current value with a preset limitation current value, and performing an off operation for the high voltage applied to the anode electrode when the detected current value is greater than the preset limitation current value;

10 judging whether a high voltage applied to the anode electrode is a preset maximum value when the detected current value is less than a preset limitation current value, and applying an increased pulse high voltage to the anode electrode when the high voltage applied to the anode electrode is less than the preset maximum value; and

15 judging whether a high voltage applied to the anode electrode is a preset maximum value, maintaining the pulse high voltage when the high voltage is greater than the preset maximum value, and thereby applying to the anode electrode.

14. The method of claim 13, wherein a direct current high voltage
20 having preset time, gradient, and limitation current value is converted into a high voltage of a pulse form by an on/off switching means corresponding to an external pulse signal and thereby applied to the anode electrode in the step of converting into the alternating current pulse high voltage and thereby applying .

25 15. The method of claim 13, wherein the field emission device is

operated in a state that the pulse high voltage having the maximum value is maintained (that is, pre-aging), and the power controlling unit applies a power to the scan driving unit thus to perform a current aging (that is, main aging) for the field emission device.

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16. The method of claim 12, wherein contaminants generated at the time of the pre-aging and the main aging are exhausted by a vacuum pump at a vacuum state.